## Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

## Listing of Claims:

1.    (Original)  An exhaust gas purification device having a filter which traps exhaust particulate from an engine, comprising:

a detection device which detects a differential pressure between the front and rear of the filter; and

a controller functioning to:

determine an operating condition of the engine;

calculate an exhaust gas pressure at an outlet of the filter based on the operating condition of the engine;

calculate an exhaust gas pressure at an inlet to the filter based on the differential pressure and outlet pressure;

calculate an exhaust gas volumetric flow rate based on the inlet pressure; and

calculate an amount of particulate accumulated in the filter based on the exhaust gas volumetric flow rate.


2.    (Original)  The exhaust gas purification device as defined in Claim 1, wherein the controller further functions to perform regeneration of the filter in accordance with the particulate accumulation.


3.    (Original)  The exhaust gas purification device as defined in Claim 1, further comprising a map which defines a relationship between the outlet pressure of the filter and the operating condition of the engine,

wherein the controller further functions to calculate the outlet pressure of the filter by referring to the map.


4.    (Original)  The exhaust gas purification device as defined in Claim 3, wherein the map defines the relationship of the outlet pressure of the filter to a rotation speed and a load of the engine.

5.    (Original)    The exhaust gas purification device as defined in Claim 1, comprising:

a first map which defines the relationship between the outlet pressure of the filter when filter regeneration is not underway and the operating condition of the engine; and

a second map which defines the relationship between the outlet pressure of the filter during filter regeneration and the operating condition of the engine,

wherein the controller further functions to:

determine whether regeneration of the filter is underway;

select the first map or second map according to whether regeneration of the filter is underway; and

calculate the outlet pressure of the filter by referring to the selected map.

6.    (Original)  The exhaust gas purification device as defined in Claim 5, wherein the first and second maps define the relationship of the outlet pressure of the filter to the rotation speed and load of the engine.

7.    (Currently Amended)  The exhaust gas purification device as defined in Claim 1, wherein the controller further functions to calculate the exhaust gas volumetric flow rate according to the following equation,

$Q1 = G \cdot R \cdot T1/P1$

where  [[$G1$]]$\underline{Q1}$    :    the exhaust gas volumetric flow rate;

$G$    :    an exhaust gas mass flow rate determined from an airflow meter output and a fuel injection amount;

$T1$    :    an exhaust gas temperature at the inlet to the filter;

$R$    :    a gas constant; and

$P1$    :    the inlet pressure of the filter.

8.    (Original)  The exhaust gas purification device as defined in Claim 2, wherein the controller further functions to raise the exhaust gas temperature of the engine by executing at least one of fuel injection timing control, fuel injection amount control, nozzle opening

control of a variable nozzle exhaust turbocharger, EGR control, intake air amount control, and auxiliary device load control, and thereby regenerates the filter.

9.      (Original)  A method for determining an amount of particulate accumulated in a filter which traps exhaust particulate from an engine, comprising:

determining an operating condition of the engine;

determining a differential pressure between the front and rear of the filter;

calculating an exhaust gas pressure at an outlet of the filter based on the operating condition of the engine;

calculating an exhaust gas pressure at an inlet to the filter based on the differential pressure and the outlet pressure;

calculating an exhaust gas volumetric flow rate based on the inlet pressure; and

calculating the amount of particulate accumulated in the filter based on the exhaust gas volumetric flow rate.

10.     (Original)  A filter regeneration method for performing regeneration of a filter in accordance with the particulate accumulation in the filter which is calculated according to the method defined in Claim 9.

11.     (Original)  An exhaust gas purification device having a filter which traps exhaust particulate from an engine, comprising:

means for detecting a differential pressure between the front and rear of the filter;

means for determining an operating condition of the engine;

means for calculating an exhaust gas pressure at an outlet of the filter based on the operating condition of the engine;

means for calculating an exhaust gas pressure at an inlet to the filter based on the differential pressure and outlet pressure;

means for calculating an exhaust gas volumetric flow rate based on the inlet pressure; and

means for calculating an amount of particulate accumulated in the filter based on the exhaust gas volumetric flow rate.